

silicates. Magnesium may have been separated from solution by this process.

Only one other analysis of a brine from a depth comparable to that from which this brine was obtained has been made, as far as is known. It was made by George Steiger<sup>6</sup> and represents a brine that is similar in chemical composition to the one reported here. The principal points of dissimilitude are that Steiger reported no silica, aluminum, or manganese, and only a trace of barium, all of which were obtained in small quantities in this analysis; he found bromide to be predominant over iodide, while in this brine iodide occurs to the exclusion of bromide; and he determined the total solids to be 263.64 grams in 1,000 grams.

ENTOMOLOGY.—*A new species of Phyllotreta.*<sup>1</sup> F. H. CHITTENDEN, Bureau of Entomology. (Communicated by L. O. Howard.)

In studying the injurious genus *Phyllotreta* accumulated in the U. S. National Museum and Bureau of Entomology, a species is found which is new to science. Like others of the genus, it attacks and undoubtedly breeds on cruciferous plants and is at least a potential pest. The description follows:

*Phyllotreta utana* Chittenden, sp. nov.

Elongate oval, moderately convex, shining black except last ventral segment which is opaque; thorax and elytra variably black or aeneous; elytral vittae very narrow, pale yellowish. Antennae less than half as long as body, joints 2 to 5 usually honey yellow, 1 and 6 either black or partly pale, remainder piceous. Each elytron with a very narrow vitta, moderately sinuate, curvature scarcely reaching beyond middle of elytron either at base or apex; each vitta with a short broad post-humeral branch. Tibiae piceous, tarsi fuscous.

Male: Last ventral segment large, concave, nearly as long as segments 2-4 combined, moderately impressed at apex with a short median impressed line at base. Antennal joints 2-3-4

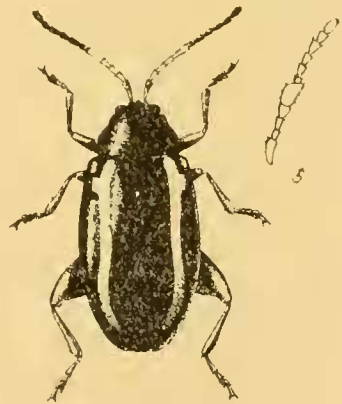


FIG. 1.—*Phyllotreta utana*

<sup>6</sup> CLARKE, F. W. *Water analyses from the laboratory of the United States Geological Survey.* U. S. Geol. Survey Water-Supply Paper 364: 9. 1914.

<sup>1</sup> Received June 8, 1920.

subequal in length; 3 and 4 subtriangular; 3 distinctly wider; 4 much wider; 5 depressed, wider than 4, about one-half longer than wide, anterior ace shorter than posterior, nearly straight; 6 short, basal part generally pale and apical piceous.

Female: Last ventral segment simple and shorter. Antennae as in *zimmermanni* and *vittata*.

Length, 2.5-3.0 mm.; width, 1.4-1.5 mm.

Logan, Utah (type locality), July 9-12, 1906; June 20, 1904; Alta, Utah, June 29 (E. D. Ball and E. G. Titus); Park City, Utah, June 17, (Hubbard & Schwarz); Elko, Nev.; Corvallis, Ore. (C. F. Moznette.)

Type No. 23114, U. S. National Museum.

A good series of specimens shows considerable variation. One individual has all antennal joints piceous and another has bluish elytral humeri. The general appearance and punctation are similar to *zimmermanni*. In addition to the distinctive characters of the antennae (the fifth joint is flat, not bowed) and last ventral segment of the male, the elytral vittae are quite different from other species, approaching *zimmermanni*, but pale, not distinctly yellow as in that species. It is also larger than the latter, which measures only 2-2.5 mm.

This species was observed by Prof. E. G. Titus and Dr. E. D. Ball at Logan, Utah, in June, 1904, attacking sugar beet. It was abundant in a beet field overgrown with hedge mustard, on which it was also taken.